METHODS AND APPARATUS FOR OXYGEN ENRICHED FLAME-PERFORATION OF A POLYMER FILM

ABSTRACT

The present invention provides an apparatus and methods for flame-perforating polymeric films with an oxygen-enriched flame. One embodiment of the apparatus includes a frame, a support surface attached to the frame, where the support surface includes a plurality of lowered portions, an oxygen-enrichment system for increasing the amount of oxygen in the combustible mixture, a burner attached to the frame opposite the support surface, where the burner supports a stable flame, and a film contacting the support surface, where the flame of the burner is directed towards the film to cause the film to be perforated. One embodiment of the method of flame perforating a polymeric film includes igniting an oxygen-enriched combustible mixture to form a stable flame, wherein the flame generated by the oxygen-enriched combustible mixture provides more uniform perforations.